Immediate, Short-Term Congestion Relief Strategies and Projects

A series of operational and system improvements are being proposed by Caltrans to reduce congestion on some of the most heavily traveled sections of the California highway system. The improvements range from restriping and maximizing the use of High Occupancy Vehicle (HOV) lanes to expanding the use of Intelligent Transportation System (ITS) applications. Table A summarizes the quick turn-around projects by the GoCalifornia elements and the GoCalifornia regions. The footnotes on this table summarize important assumptions and considerations in preparing the inventories.

Traffic congestion continues to increase on California's highway system. In the past 12 months, more than 160 billion vehicle miles were registered on California highways and travel is increasing an average of two-percent a year. California has the ten most heavily traveled freeway segments in the United States. Los Angeles and the San Francisco Bay Area are the two most congested urban areas in the country. Seven California cities are among the top 25 most congested areas in the nation. Traffic congestion is costing Californians time and money. In simplest terms, congestion occurs when demand for road space exceeds the supply. This occurs when demand surges due to events or routine traffic peaks and when supply is constricted due to an incident such as a collision. The routine or "recurrent" delay accounts for approximately 558,000 vehicle hours of delay daily. The unexpected delay is roughly equivalent. The bottom line is that each day, Californians are spending an average of over one million hours stuck in traffic at an estimated cost of $15 million in lost productivity.

Traditional measures to reduce congestion require a long lead-time and take many years to deliver. The average proposal to add a lane to a freeway in an urban area, for example, where there is public support and no other impediments – takes an average of seven years to complete. Traffic congestion is hampering efforts to attract new businesses to the Golden State and discouraging expansion by existing businesses.

The California Department of Transportation (Caltrans) has helped to unveil GoCalifornia, a long-term solution that aims to reduce below current levels the congestion estimated in 2025. In the short term, Caltrans Director Will Kempton has instructed the Department to propose strategies to speed up congestion relief by accelerating the delivery of short-term improvements to the existing transportation system. Completion of these short-term improvements, not now programmed, will result in approximately 8,000 additional jobs for Californian's and add $470 million to the gross state product.

This report identifies two broad categories of opportunities to address congestion:

1. 34 location specific concepts that could be implemented in the short term.
2. 3 statewide strategies that could be implemented in the short term.

Location Specific Concepts

Operational Improvements

- Lane Conversions
  - Restriping to create HOV lanes (1)
  - Restriping to create auxiliary lanes (9)
  - Restriping to create transit-only lane (1)
  - Improving ramp entrance/exits (3)

Operational Improvements (continued)

- HOV Lane Operation
  - Convert full-time to part-time HOV lane (1)
  - Convert HOV lane to mixed-flow lane (1)
- Commercial Vehicle Operations
  - Bypass lanes for inspection facilities (2)
- Interchange Modification (1)

Intelligent Transportation Systems

- Electronic Toll Collection (1)
- Smart Parking (1)
- ATMS Roll-Out (1)
- Detection and Motorist information (1)

Traffic Control

- Ramp Metering (1)
- Signal Coordination (3)

Traveler Information

- Travel Times on Changeable Message Signs (3)
- Traffic Conditions from Cell Phone Data (1)
- Statewide Subscriber Services (1)

System Monitoring and Evaluation

- Vehicle Detection (2)

Total (34)

Statewide Strategies

The following strategies are not location specific and must be given consideration to improve the operational efficiency of highways.

1. Aggressive implementation of systems to display traveler information on the Changeable Message Signs (CMS).
2. Use of aggressive ramp metering coupled with installation of CMS at decision points on local roads to display queue time at on-ramps.

3. Expand use of Freeway Service Patrol (FSP) to weekends on popular travel routes. Currently FSP generally patrols congested commuter routes during peak periods in the morning and afternoon.

PROJECT AND STRATEGY FACT SHEETS

Individual fact sheets for all projects and strategies are included with key information for each proposal. This includes the project location, description, potential known and anticipated constraints, approximate costs, implementation timeline and major benefits. There is a fairly broad range of costs for the various projects and strategies, each dependent upon a variety of details and factors unique to it. Table B provides a summary of all proposed congestion reduction strategies.

GENERAL CONSTRAINTS

A variety of constraints will have to be overcome to implement these proposals. These constraints are applicable in varying degrees to the projects included in the proposals. The most critical constraints include the following:

- **Environmental Issues**

In general, approval from permitting agencies should not be required as the concepts do not require additional right of way, nor will there be activities that could impact aquatic and cultural resources. However, as the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) documentation is prepared, the need for permitting will be verified. Public input may be necessary for some concepts. In order to comply with any air conformity issues as part of the Federal Transportation Improvement Program (FTIP) process, it will be critical to coordinate with the appropriate Regional Transportation Planning Agencies and Metropolitan Planning Organizations (MPO). Noise studies may also be required for the projects, resulting in mitigation needs. These concepts do not include soundwalls which if needed will have to be dealt with separately. The implementation timelines and costs identified for the concepts assume there will be no environmental concerns.

- **Coordination Issues**

All the projects resulting from these concepts will require substantial coordination with the Department of California Highway Patrol, local and regional agencies, toll authorities, the trucking industry, the California Transportation Commission, the Federal Highway Administration (FHWA), advocacy groups, and a host of other interested parties including local, state, federal, and elected officials.

- **Design Issues**

1. Design Exceptions
   Most of the concepts presented herein will require exceptions to design standards. Some of them will require concurrence from the Federal Highway Administration (FHWA). The approval of any design exceptions must be based on sound engineering judgement and must document the basis for deviating from departmental standards and the benefits derived from that deviation.

2. Medians
   Medians are used extensively for shifting mainline traffic, as part of clear recovery areas, for storing equipment during construction or maintenance as well as for enforcement purposes. Those opportunities will be lost if the median is converted to a travel lane.

3. Drainage
   Drainage costs, particularly with restriping can be substantial.

4. Shoulder Structural Section
   Existing shoulder structural sections may not be adequately designed to carry the full load of continuous traffic that the regular traffic lanes are designed to support.

- **Resource Issues**

These concepts are not currently funded for Capital Outlay Support, operations or maintenance. The Department will need to augment its operating expense budget through a Finance Letter in the current fiscal year for those concepts that need increased budget authority for Operations. Based on the implementation mechanism selected (delivery through the State Highway Operations and Protection Program (SHOPP), Maintenance Contract, Service Contracts, etc.), there will be impacts to ongoing programs and projects as resources are redirected towards these new concepts. If additional resources are provided to deliver these newly identified concepts, staffing up and/or contracting out in a timely manner will still be a challenge.

- **Delivery Issues**

Work on the projects resulting from the concepts will impact progress of work on the delivery of currently programmed projects. Since the concepts are not currently programmed, they will need to be programmed in the State Transportation Improvement Program (STIP) or the SHOPP. This action requires concurrence from the California Transportation Commission to program and allocate capital funding. MPOs will be required to amend their FTIPs for any regionally significant project and to maintain overall financial constraint. In addition to concurrence with air quality conformity analysis and approval of design issues, the FHWA will need to approve the amendments to the FTIPs.

In the absence of additional funding, these concepts would require redirecting funds from other programmed projects. Concepts implemented in the current fiscal year will displace an equal amount of funding from currently programmed SHOPP projects to rehabilitate pavement or state bridges. Concepts implemented in fiscal year 2006-07 will displace funding from additional pavement or bridge rehabilitation projects, or from SHOPP operational improvement projects and STIP projects that provide similar congestion relief. Also, project costs identified in the fact sheets are capital cost only and do not include support costs.

- **Legislative Issues**

The elimination of HOV lanes and establishing truck restrictions on highways during specific hours may require a change in state law.

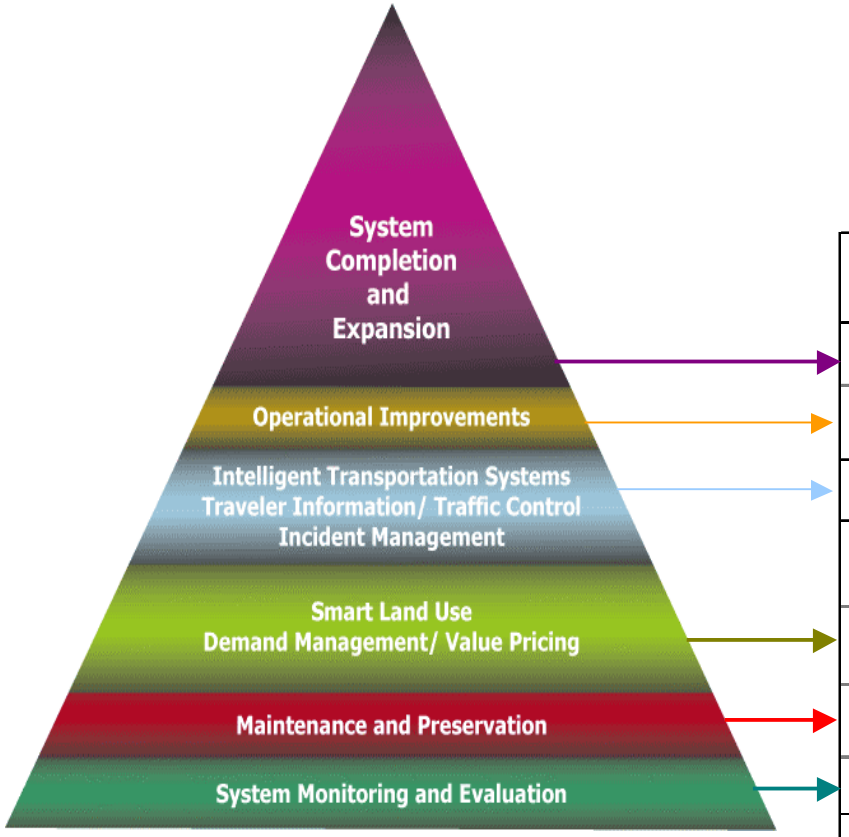
- **Right of Way Issues**

There could be delays to the concepts if there is a need for permits to enter, obtaining easements, and relocation of any utilities, on any of the projects resulting from the concepts.

TABLE A

PYRAMID - SUMMARY OF TRAFFIC OPERATIONS PROJECTS

$136.92 Million Projects - Summary by Slice and GoCalifornia Regions



TOTAL	GoCalifornia Regions				
	Bay Area	Central Valley	Southern CA LA and Orange	Southern CA Inland Empire	San Diego & Imperial
$37.30		$18.10		$0.25	$18.95
$83.62	$25.00		$35.77	$3.00	$0.35
$16.00					$6.00
$136.92	$25.00	$18.10	$35.77	$3.25	$25.30

All dollars in millions

Capital Outlay Support, Operations and Maintenance Costs are not included in projects

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Table B
Congestion Reduction Strategies

Go California Region	Pyramid Strategy	Cost	Project
Bay Area	TC	11,000,000	Expand signal coordination on State Route 82.
Bay Area	ITS	10,000,000	Fill in gaps in detection and motorist information systems on Interstate 80.
Bay Area	ITS	4,000,000	Smart Parking on the U.S. 101 Corridor in San Mateo and Santa Clara Counties.
Bay Area	ITS	0	Expand use of electronic toll collection for all toll crossings.
Central Valley	OI	6,000,000	Create Auxiliary lane on State Route 99 from Mack Road to Florin Road by re-striping mainline lanes to 11-foot width and using shoulders.
Central Valley	OI	4,000,000	Create Auxiliary lanes on U.S. 50 from Mather Field Road to Zinfandel Drive by re-striping and using shoulders.
Central Valley	OI	3,000,000	Extend slip and loop ramp weave merges at US 50 at Hazel Avenue by restriping and using shoulders.
Central Valley	OI	3,000,000	Extend truck climbing lane on U.S. 50 from Scott Road to Latrobe Road by restriping and using shoulders.
Central Valley	OI	2,000,000	Construct eastbound State Route 58 auxiliary lane by using median; re-stripe existing eastbound 2 lanes to 11-foot lane.
Central Valley	OI	100,000	Convert northbound right shoulder on State Route 41 to a right turn lane; re-stripe existing two northbound lanes to 11-foot lanes.
Inland Empire	TC	3,000,000	Coordinate traffic signals on various state routes in San Bernardino County.
Inland Empire	OI	250,000	Convert full time HOV lane on State Route 60 from junction of State Route 60/215 to Redlands Boulevard to part-time lane
Orange County	TI	2,500,000	Install 13 additional Changeable Message Signs within Orange County.
Orange County	TI	500,000	Expand display of travel time on Changeable Message Signs (CMS) at various locations.
San Diego	OI	250,000	Modify High Occupancy Vehicle Lane (HOV) on State Route 54.
San Diego	OI	2,000,000	Add additional Secure Electronic Network For Travelers Rapid Inspection (SENTRI) lane.
San Diego	OI	2,000,000	Add a Free And Secure Trade (FAST) lane on Interstate 905 at Otay Mesa.
San Diego	OI	1,500,000	Interchange modification on Interstate 5 at 28th Street.
San Diego	OI	750,000	Completion of auxiliary lane between Cannon Road and Palomar Airport Road on Interstate 5.
San Diego	OI	1,000,000	Restripe the gore to allow two lanes of traffic to exit at Via de la Valle off ramp.
San Diego	ITS	6,000,000	Complete installation of loop detection system for the major metro area of San Diego County.
San Diego	TI	350,000	Display of travel times on Changeable Message Signs (CMS) at various locations in the major metro area of San Diego County.

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Table B
Congestion Reduction Strategies

Go California Region	Pyramid Strategy	Cost	Project
San Diego	OI	500,000	Restripe shoulder to add an auxiliary lane between Mollison Avenue and 2nd Street.
San Diego	OI	9,500,000	Add auxiliary lanes at Lomas Santa fe on Interstate 5.
San Diego	OI	300,000	Converts single lane exit ramp on Interstate 805 at Telegraph Canyon Road East to two lanes.
San Diego	OI	250,000	Create Transit Only Lane on State Route 52 and Interstate 805
San Diego	OI	900,000	Add additional high occupancy vehicle lane to SR 94 connector.
Southern California	TC	12,500,000	Provide adaptive signal system development on various routes in Los Angeles County.
Southern California	TI	270,000	Expand display of travel time on Changeable Message Signs (CMS).
Southern California	TC	20,000,000	Develop and implement corridor management on Interstate 210.
Statewide	ITS	12,000,000	Statewide Advanced Transportation Management System (ATMS) rollout.
Statewide	TI	1,000,000	Statewide traveler information subscriber services.
Statewide	TI	6,500,000	Statewide traffic congestion data for travelers using cell phone probe technology.
Statewide	SME	10,000,000	Statewide loop repair for performance measurement.
		136,920,000	

Abbreviations

ITS INTELLIGENT TRANSPORTATION SYSTEM

TC TRAFFIC CONTROL

TI ITS TRAVELER INFORMATION

OI OPERATIONAL IMPROVEMENT

SME SYSTEM MONITORING AND EVALUATION